

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/21297

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01N 33/566, 33/567, 21/21, 33/52, 33/53

US CL : 435/7.1, 7.21, 7.8; 436/501, 503, 172, 546

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/7.1, 7.21, 7.8; 436/501, 503, 172, 546

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0160496 A1 (GEWIRTH et al.) 31 October 2002 (31.10.2002), paragraphs 283-286, 289, 292-295, 301.	18, 19, 21

Y		1-8, 20, 22, 23
Y	WO 02/094196 A2 (SLOAN KETTERING INSTITUTE FOR CANCER RESEARCH) 28 November 2002 (28.11.2002), pages 3-6.	1-8 and 18-23
Y	US 6,060,598 A (DEVLIN et al.) 09 May 2000 (09.05.2002), col. 3, lines 49-56; col. 4, lines 53-67; col. 5, line 29, to col. 6, line 14; col. 6, lines 39-54; col. 17, lines 28-31.	1-8 and 18-23
Y	US 4,902,630 A (BENNETT et al.) 20 February 1990 (20.02.1990), col. 2, lines 49-63; col. 3, lines 41-49; col. 4, lines 22-36; col. 7, lines 16-34).	1-8 and 18-23

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"B" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

01 July 2005 (01.07.2005)

Date of mailing of the international search report

27 JUL 2005
Authorized officer
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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☒ Claims Nos.: 9-17
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-8 and 18-23

Remark on Protest

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☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

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BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-8 and 18-23, drawn to a method of identifying an Hsp90 inhibitor molecule.

Group II, claim(s) 24-31, drawn to a compound comprising an Hsp90-binding moiety and a fluorescent moiety whose degree of polarized fluorescence, when bound to Hsp90, is greater than when not bound to Hsp90.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons.

The requirement of unity of invention is not fulfilled because there is no technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" means those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art. Therefore, a technical relationship is lacking among the claimed inventions involving one or more special technical features.

The inventions of Groups I and II do not share the common special technical feature of a compound comprising an Hsp90-binding moiety and a fluorescent moiety whose degree of polarized fluorescence, when bound to Hsp90, is greater than when not bound to Hsp90. Triantafilou et al. ("Fluorescence recovery after photobleaching reveals that LPS rapidly transfers from CD14 to hsp70 and hsp90 on the cell membrane," J Cell Sci 114:2535-2545, 2001) disclose a compound comprising fluorescein isothiocyanate (FITC) bound to LPS. LPS binds to Hsp90 (see p. 2537, 2^d paragraph, p. 2542, 1st full paragraph, and paragraph bridging pp. 2543 and 2544). Weiel et al. ("The binding of fluorescein-labeled protein synthesis initiation factor 2 to Escherichia coli 30S ribosomal subunits determined by fluorescence polarization," J Biol Chem 257(3):1215-1220, 1982) disclose that FITC is a fluorescent label that exhibits fluorescence polarization and that the degree of fluorescence polarization is increased when the molecule to which the FITC is bound (IF2) is bound to 30S ribosomal subunits (see Abstract and p. 1216, 2^d full paragraph).

Thus, the technical feature of a compound comprising an Hsp90-binding moiety and a fluorescent moiety whose degree of polarized fluorescence, when bound to Hsp90, is greater than when not bound to Hsp90 does not define the invention over the prior art. Because the common special technical feature is not novel with respect to the cited reference, it is clear that the claims of Groups I and II lack a single common technical feature that defines them over the prior art.

Accordingly, a holding of lack of unity of invention is proper.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reason. Pursuant to PCT Rule 13.2 and PCT Administrative Instructions, Annex B, Part 1(f)(I)(B)(2), the species are not art-recognized equivalents. Claims 5 and 20 each list a group of very disparate cell types. Claims 7 and 22 each list a group of unrelated cell types.

The species are as follows:

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- a) each type of cancer cell listed in claim 5;
- b) each type of cancer cell listed in claim 20.
- c) each type of cell listed in claim 7; and
- d) each type of cell listed in claim 22.

Applicant is required, in reply to this action, to elect a single species in group a) and two species in group c). The species elected in group a) will apply to group b), as groups a) and b) recite the same set of species. The two species elected in group c) will apply to group d), as groups c) and d) recite the same set of species. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is patentable or that all claims are generic is considered non-responsive unless accompanied by an election. The following claims are generic: 5, 7, 20 and 22.

Because the claimed species are not art-recognized equivalents, a holding of lack of unity of invention is proper.

Claims 9-17 are not searchable because they are improper multiple dependent claims; they depend from multiple dependent claims.

Continuation of B. FIELDS SEARCHED Item 3:

USPAT, USPGPUB, EPO, JPO, DERWENT, STN- CAPLUS & BIOSIS, search terms: hsp-90, inhibitor, fluorescence, polarization, screening, assay